

OPINIONS AND DECLARATIONS RENDERED BY THE INTER- NATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

Edited by

FRANCIS HEMMING, C.M.G., C.B.E.

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OPINION 552

Grant under the Plenary Powers of precedence to the family-group name GLOBIGERINIDAE Carpenter, Parker & Jones, 1862, over the family-group name ORBULINIDAE Schultze, 1854 (Class Rhizopoda, Order Foraminifera), and matters incidental thereto



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INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

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OPINION 552

GRANT UNDER THE PLENARY POWERS OF PRECEDENCE TO THE FAMILY-GROUP NAME "GLOBIGERINIDAE" CARPENTER, PARKER & JONES, 1862, OVER THE FAMILY-GROUP NAME "ORBULINIDAE" SCHULTZE, 1854 (CLASS RHIZOPODA, ORDER FORAMINIFERA) AND MATTERS INCIDENTAL THERETO

RULING :—(1) It is hereby directed under the Plenary Powers that the family-group name GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker & Jones, 1862, is to be given precedence over the family-group name ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854, by any author who on taxonomic grounds is of the opinion that the genera which are the respective type genera of the foregoing nominal family-group taxa are referable to a single taxonomic family-group unit.

(2) The under-mentioned generic names are hereby placed on the *Official List of Generic Names in Zoology* with the Name Numbers severally specified below :—

- (a) *Globigerina* d'Orbigny, 1826 (gender : feminine) (type species, by selection by Parker, Jones & Brady (1865) : *Globigerina bulloides* d'Orbigny, 1826) (Name No. 1344) ;
- (b) *Orbulina* d'Orbigny, 1839 (gender : feminine) (type species by monotypy : *Orbulina universa* d'Orbigny, 1839) (Name No. 1345).

(3) The under-mentioned specific names are hereby placed on the *Official List of Specific Names in Zoology* with the Name Numbers severally specified below :—

- (a) *bulloides* d'Orbigny, 1826, as published in the combination *Globigerina bulloides* (specific name of type species of *Globigerina* d'Orbigny, 1826) (Name No. 1624) ;
- (b) *universa* d'Orbigny, 1839, as published in the combination *Orbulina universa* (specific name of type species of *Orbulina* d'Orbigny, 1839) (Name No. 1625).

(4) The under-mentioned generic name is hereby placed on the *Official Index of Rejected and Invalid Generic Names in Zoology* with the Name Number 1262:—

Globigenera Sowerby (G.B.), 1842 (an Erroneous Subsequent Spelling for *Globigerina* d'Orbigny, 1826).

(5) The under-mentioned family-group names are hereby placed on the *Official List of Family-Group Names in Zoology* with the Name Numbers severally specified below :—

- (a) GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker & Jones, 1862 (type genus : *Globigerina* d'Orbigny, 1826) (a name taking precedence under the direction given under the Plenary Powers in (1) above before the name ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854, for any author who on taxonomic grounds is of the opinion that the genera which are the respective type genera of these nominal family-group taxa are referable to a single taxonomic family-group unit) (Name No. 263) ;
- (b) ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854 (type genus : *Orbulina* d'Orbigny, 1839) (a name taking precedence under the Ruling

given under the Plenary Powers in (1) above) below the name GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker & Jones, 1862, for any author who on taxonomic grounds is of the opinion that the genera which are the respective type genera of these nominal family-group taxa are referable to a single taxonomic family-group unit) (Name No. 264).

(6) The under-mentioned family-group names are hereby placed on the *Official Index of Rejected and Invalid Family-Group Names in Zoology* with the Name Numbers severally specified below :—

- (a) GLOBIGERINIDA Carpenter, Parker & Jones, 1862 (type genus: *Globigerina* d'Orbigny, 1826) (an Invalid Original Spelling for GLOBIGERINIDAE) (Name No. 293) ;
- (b) ORBULINIDA Schultze, 1854 (type genus : *Orbulina* d'Orbigny, 1839) (an Invalid Original Spelling for ORBULINIDAE) (Name No. 294) ;
- (c) TURBINOIDAE d'Orbigny, 1840 (invalid because not based upon the name of an included genus) (Name No. 295).

I. THE STATEMENT OF THE CASE

On 14th December 1956, Mr. Arthur N. Dusenbury, Jr. (*Creole Petroleum Corporation, Jusepín, Monagas, Venezuela*) addressed a preliminary enquiry to the Office of the Commission in regard to a family-group-name problem arising in the Order Foraminifera (Class Rhizopoda). The names concerned were GLOBIGERINIDAE and ORBULINIDAE. The correspondence so opened culminated on 31st March 1957, on which date Mr. Dusenbury submitted the following application in which he asked that the Commission should use its Plenary Powers to direct that the older but less known name ORBULINIDAE should not be used in preference to the established name GLOBIGERINIDAE by authors who on taxonomic grounds considered that the respective type genera of the above nominal family-group taxa were properly applicable to a single taxonomic family-group taxon :—

Proposed use of the Plenary Powers to direct that the family-group name "ORBULINIDAE" Schultze, 1854, is not to be given precedence over "GLOBIGERINIDAE" Carpenter, Parker and Jones, 1862 (Class Rhizopoda, Order Foraminifera) by authors who refer the two type genera to the same family-group taxon

By ARTHUR N. DUSENBURY, JR.
(*Creole Petroleum Corporation, Jusepín, Monagas, Venezuela*)

The purpose of this proposal is to maintain the current usage of the family-group name GLOBIGERINIDAE Carpenter, Parker and Jones, 1862, against the priority of the family-group name ORBULINIDAE Schultze, 1854, thereby tending to promote greater stability and universality of nomenclature. The type genera, *Globigerina* d'Orbigny, 1826, and *Orbulina* d'Orbigny, 1839, are currently placed in the family GLOBIGERINIDAE (Order Foraminifera, Class Rhizopoda). They are pelagic in habitat, but the minute calcareous tests of dead individuals accumulate on the bottom over wide areas at depths of less than 5,000 metres in all present-day oceans, together with the calcareous tests of other genera of the family GLOBIGERINIDAE and the allied family GLOBOROTALIIDAE. The genus *Globigerina* is the most abundant and widespread, hence oceanographers characterise these accumulations as *Globigerina*

ooze (if the deposit is over 30 per cent. calcareous) or *Globigerina* mud (if the deposit is under 30 per cent. calcareous). Geologically, *Globigerina* and the GLOBIGERINIDAE range from the Lower Cretaceous to the Recent, while *Orbulina* ranges from the Miocene to the Recent. Because of their pelagic habitat and consequent wide geographic range, the genera and species of the GLOBIGERINIDAE make useful index fossils for paleontologists and stratigraphers. It is evident that marine biologists, oceanographers, paleontologists and stratigraphers will be interested in this case and will desire to stabilise the pertinent nomenclature. Brooks F. Ellis and Angelina R. Messina (1940 to present date, *Catalogue of Foraminifera*, American Museum of Natural History, New York, looseleaf, pages not numbered) have so far listed 204 species and varieties originally described as *Globigerina* and 43 species and varieties originally described as *Orbulina*. Perhaps half of these species and varieties are currently assigned to other genera and a few do not even belong in the Foraminifera.

2. In 1826, Alcide Dessalines d'Orbigny ("Tableau méthodique de la classe de Céphalopodes", *Annales des Sciences Naturelles*, Paris, ser. 1, vol. 7, pp. 271, 277) established the genus *Globigerina* with twelve new species, nine of which were *nomina nuda* and the remaining three valid, indications being provided by references to the non-Linnaean author Soldani (1789-1799, *Testaceographia ac Zoophytographia*, Siena, Italy). One of the three valid species was *Globigerina bulloides*, collected from the Adriatic Sea near Rimini, Italy. The genus *Globigerina* was assigned to the division Turbinoïdes of the family HÉLICOSTÈGUES. Both of these family-group names have French vernacular terminations and are therefore invalid as well as obsolete.

3. In 1839, d'Orbigny (*Foraminifères*; in Ramón de la Sagra: *Histoire physique, politique et naturelle de l'Île de Cuba*, A. Bertrand, Paris, p. 2) created the nominal genus *Orbulina* containing the single new species *Orbulina universa* (: 3). This species was described in the above-mentioned work, but the plates were published separately. It is clear that *Orbulina universa* d'Orbigny, 1839, is the type species of *Orbulina* d'Orbigny, 1839, by monotypy. *Globigerina* was then assigned to the family TURBINOÏDES of the order Hélicostègues, while *Orbulina* was placed in the new order Monostègues, which was not divided into families.

4. In 1840, a Spanish edition of d'Orbigny's 1839 publication was issued with plates included (*Foraminiferas*; in Ramón de la Sagra: *Historia física, política y natural de la Isla de Cuba*, A. Bertrand, Paris, pp. 28, 34-35, pl. 1, fig. 1). *Globigerina* was placed in the family TURBINOÏDAE of the order Helicostegas and *Orbulina* in the order Monostegas, which was not divided into families. Helicostegas and Monostegas are the Spanish vernacular equivalents of the French vernacular Hélicostègues and Monostègues. Although Latinized, the family-group name TURBINOÏDAE is invalid because it is not based upon an included type genus. The name TURBINOÏDAE is apparently derived from the mode of coiling, which is trochoidal like that of the gastropod genus *Turbo* of the family TURBINIDAE. The TURBINOÏDAE were contrasted with the other family of the Helicostegas, the NAUTILOÏDAE, which coil planispirally like the cephalopod genus *Nautilus* of the family NAUTILIDAE.

5. In 1854, Max Sigmund Schultze (*Über den Organismus der Polythalamien (Foraminiferen) nebst Bemerkungen über die Rhizopoden im allgemeinen*, Engelmann, Leipzig, p. 52) erected the family ORBULINIDA in his Sub-Order Monothalamia of his order Testacea. The type genus is

Orbulina d'Orbigny, 1839. The genus *Globigerina* d'Orbigny, 1826, was placed in another family in the Sub-Order Polythalamia.

6. In 1862, William B. Carpenter, William K. Parker and T. Rupert Jones (*Introduction to the Study of the Foraminifera*, Ray Society, London, pp. 171–175) established the family GLOBIGERINIDA with *Globigerina* d'Orbigny, 1826, as the type genus. The family contained three incorrectly spelled subfamilies: GLOBIGERINAE, ROTALINAE and TEXTULARINAE. The genus *Orbulina* d'Orbigny, 1839, was also placed in the family GLOBIGERINIDA but was not included in any of the three subfamilies.

7. In 1865, William K. Parker, T. Rupert Jones and Henry B. Brady ("On the nomenclature of the foraminifera; Part 12 (misprinted as 'Part 10 continued')", The species enumerated by d'Orbigny in the 'Annales des Sciences Naturelles', vol. 7, 1826", *Annals and Magazine of Natural History*, London, ser. 3, vol. 16, p. 36) designated *Globigerina bulloides* d'Orbigny, 1826, as the type species of *Globigerina* d'Orbigny, 1826.

8. In February 1876, T. Rupert Jones ("Remarks on the foraminifera, with especial reference to their variability of form, illustrated by the Cristellarians", *Monthly Micr. Journal*, London, vol. 15, no. 86, pp. 89–92) divided the family GLOBIGERINIDA into four subfamilies, the typical subfamily being termed the GLOBIGERININA.

9. In 1876, Karl A. Zittel (*Handbuch der Paläontologie*, R. Oldenbourg, München and Leipzig, vol. 1, pt. 1, pp. 61–106) was the first to emend the name GLOBIGERINIDA to the correct form GLOBIGERINIDAE. He included both *Globigerina* and *Orbulina* in the family. The typical subfamily was called the GLOBIGERINAE.

10. Conrad Schwager (1876, "Saggio di una classificazione dei foraminiferi, avuto riguardo alle loro famiglie naturali", *Boll. R. Com. geol. Ital.*, Roma, vol. 7, pp. 475–485; 1877, "Quadro del proposto sistema di classificazione dei foraminiferi con guscio", *Boll. R. Com. geol. Ital.*, Roma, vol. 8, pp. 18–27) established the superfamily GLOBIGERINIDEA with the GLOBIGERINIDAE as the typical family.

11. In 1880, O. Bütschli ("System der Rhizopoda" in H. G. Bronn's *Klassen und Ordnungen des Thier-Reichs*, C. F. Winter, Leipzig and Heidelberg, vol. 1 (Protozoa), pp. 172–217) included in his classification the "family GLOBIGERININAE Carpenter" and the subfamily GLOBIGERINAE Carpenter.

12. In 1884, Henry B. Brady (*Report on the Foraminifera in Voyage of H.M.S. "Challenger"*, *Zoology*, London, vol. 9, p. 71), like Zittel, included both *Globigerina* and *Orbulina* in the family GLOBIGERINIDAE. He did not, however, divide the family into subfamilies.

13. In 1927, Joseph A. Cushman (*An Outline of a Re-Classification of the Foraminifera*, Contributions from the Cushman Laboratory for Foraminiferal Research, Sharon, Massachusetts, vol. 3, pt. 1, pp. 87–91) divided the family GLOBIGERINIDAE into four subfamilies the first two of which are the GLOBIGERININAE and the ORBULININAE. This arrangement was maintained without change throughout four editions (1928, 1933, 1940 and 1948) of Cushman's text-book, *Foraminifera, Their Classification and Economic Use*, and is the one still preferred by most authors.

14. In 1933, Jesse J. Galloway (*Manual of Foraminifera*, Principia Press, Inc., Bloomington, Indiana, p. 326), recognizing the priority of Schultze, correctly emended Schultze's name ORBULINIDA to ORBULINIDAE and employed it instead of the current name GLOBIGERINIDAE. This usage has never become popular. Galloway did not divide the ORBULINIDAE into subfamilies.

15. In 1936, Frederick Chapman and Walter J. Parr ("A Classification of the Foraminifera", *Proceedings of the Royal Society of Victoria*, new series, vol. 49, pt. 1, p. 145) divided the family ORBULINIDAE into six subfamilies, the first two being the GLOBIGERININAE and the ORBULININAE. In 1937, the same authors (*Foraminifera in Australasian Antarctic Expedition, Scientific Reports, Series C—Zoology and Botany*, vol. 1, pt. 2, pp. 11–114) reverted to the family name GLOBIGERINIDAE with the typical subfamily GLOBIGERININAE including both *Globigerina* and *Orbulina*.

16. In 1945, Martin F. Glaessner (*Principles of Micropaleontology*, Melbourne University Press, pp. 148–150) divided the family GLOBIGERINIDAE into the subfamily GLOBIGERININAE, containing both *Globigerina* and *Orbulina*, and the subfamily Hantkenininae.

17. There is obviously a conflict between current usage and priority. Current usage recognises the family name GLOBIGERINIDAE Carpenter, Parker and Jones, 1862, while priority demands the use of the name ORBULINIDAE Schultze, 1854. The *Copenhagen Decisions on Zoological Nomenclature*, Paragraph 45, Section 1, state: "The naming of units belonging to the Family-Group of categories shall be governed by priority, except that, in cases where priority is in conflict with current usage, current usage is to be maintained, wherever, in the opinion of the individual taxonomist, this would lead to greater stability and universality of nomenclature than would the strict application of priority".

18. In order to maintain current usage and thereby to promote greater stability and universality in the nomenclature of the Foraminifera, the International Commission on Zoological Nomenclature is requested:—

- (1) to use its Plenary Powers to direct that the family-group name ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854, is not to be given precedence over the family-group name GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker and Jones, 1862, by any author who, on taxonomic grounds, is of the opinion that the genera which are the respective type genera of the foregoing nominal family-group taxa are both referable to one and the same family-group taxon;
- (2) to place the under-mentioned generic names on the *Official List of Generic Names in Zoology*:—
 - (a) *Globigerina* d'Orbigny, 1826 (gender: feminine) (type species, by selection by Parker, Jones and Brady (1865): *Globigerina bulloides* d'Orbigny, 1826);
 - (b) *Orbulina* d'Orbigny, 1839 (gender: feminine) (type species, by monotypy: *Orbulina universa* d'Orbigny, 1839);
- (3) to place the under-mentioned generic name on the *Official Index of Rejected and Invalid Generic Names in Zoology*:—

Globigenera Sowerby, 1842 (*A Conchological Manual* (Ed. 2): 154), an Erroneous Subsequent Spelling of *Globigerina* d'Orbigny, 1826;

- (4) to place the under-mentioned specific names on the *Official List of Specific Names in Zoology* :—
- (a) *bulloides* d'Orbigny, 1826, as published in the combination *Globigerina bulloides* (specific name of type species of *Globigerina* d'Orbigny, 1826) ;
 - (b) *universa* d'Orbigny, 1839, as published in the combination *Orbulina universa* (specific name of type species of *Orbulina* d'Orbigny, 1839) ;
- (5) to place the under-mentioned family-group names on the *Official List of Family-Group Names in Zoology* :—
- (a) GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker and Jones, 1862 (type genus : *Globigerina* d'Orbigny, 1826) (first published in correct form as GLOBIGERINIDAE by Zittel, 1876) ;
 - (b) ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854, subject to the restriction prescribed under the Plenary Powers in (1) above (type genus : *Orbulina* d'Orbigny, 1839) (first published in correct form as ORBULININAE by Cushman, 1927) ;
- (6) to place the under-mentioned family-group names on the *Official Index of Rejected and Invalid Family-Group Names in Zoology* :—
- (a) ORBULINIDA Schultze, 1854 (an Invalid Original Spelling for ORBULINIDAE) ;
 - (b) GLOBIGERINIDA Carpenter, Parker and Jones, 1862 (an Invalid Original Spelling for GLOBIGERINIDAE) ;
 - (c) TURBINOIDAE d'Orbigny, 1840, *in de la Sagra* (invalid because not based on the name of a type genus).

II. THE SUBSEQUENT HISTORY OF THE CASE

2. Registration of the present application : Upon the receipt in December 1956 of Mr. Dusenbury's preliminary communication, the question of the possible use of the Commission's Plenary Powers for the purpose of giving precedence to the family-group name GLOBIGERINIDAE over the older name ORBULINIDAE (Class Rhizopoda, Order Foraminifera) was allotted the Registered Number Z.N.(S.) 1196.

3. Publication of the present application : The present application was sent to the printer on 16th April 1957 and was published on 28th June of the same year in Part 6 of Volume 13 of the *Bulletin of Zoological Nomenclature* (Dusenbury (A.N.), 1957, *Bull. zool. Nomencl.* **13** : 194-199).

4. Issue of Public Notices : Under the revised procedure prescribed by the Thirteenth International Congress of Zoology, Paris, 1948 (1950, *Bull. zool. Nomencl.* **4** : 51-56), Public Notice of the possible use by the International Commission on Zoological Nomenclature of its Plenary Powers was given on 28th June 1957 (a) in Part 6 of Volume 13 of the *Bulletin of Zoological Nomenclature* (the part in which Mr. Dusenbury's application was published) and (b) to the other prescribed serial publications. In addition, such Notice was given also to four general zoological serial publications.

5. Comments Received : The publication of the present application and the issue of Public Notice regarding the possible use of the Commission's Plenary

Powers elicited comments from two specialists. Of these, the first, Professor Joseph St. Jean, Jr. (*University of North Carolina*) expressed the view that the points made in Mr. Dusenbury's paper were "sound in themselves" but were not of sufficient weight to justify a departure from the principle of priority at the family-group-name level. The second of the communications received was from Miss Ruth Todd (*U.S. Geological Survey*) who supported Mr. Dusenbury's application, considering that its adoption would "aid in promoting stability and universality in the nomenclature of the Foraminifera". The communications in question are reproduced in the immediately following paragraphs.

6. Objection received from J. St. Jean, Jr. : On 11th November 1957, Professor Joseph St. Jean, Jr. (*Visiting Assistant Professor of Geology, University of North Carolina, Chapel Hill, North Carolina, U.S.A.*) addressed to the Office of the Commission a letter, with which he submitted the following paper in which he set out the reasons which made it impossible for him to support the present application :—

Comment on Arthur N. Dusenbury's proposal to suppress the family-group name "ORBULINIDAE" Schultz, 1854, in favor of "GLOBIGERINIDAE" Carpenter, Parker & Jones, 1862 (Class Rhizopoda, Order Foraminifera)

By JOSEPH ST. JEAN, JR.

(*Department of Geology and Geography, University of North Carolina, Chapel Hill, North Carolina*)

Mr. Dusenbury's proposal Z.N.(S.) 1196 for the suppression of ORBULINIDAE Schultz, 1854, in favor of GLOBIGERINIDAE Carpenter, Parker & Jones, 1862, illustrates a problem that will be encountered repeatedly in the immediate future because the Copenhagen decision relating to the application of the Law of Priority to family terms has been in effect only for a short period of time. Mr. Dusenbury is to be congratulated on the thorough and logical presentation to justify the proposal. It might be added that most present-day students of Foraminifera recognise the close relationship of the two genera, *Orbulina* and *Globigerina* concerned with the family names under discussion (Dusenbury, para. 18(1)). It would be unlikely that in any revised classification of the Foraminifera the two genera would be put in separate families, thus students of Foraminifera will have to use either the family term GLOBIGERINIDAE or ORBULINIDAE, depending on the decision reached by the Commission. On the basis of arguments presented I would support Mr. Dusenbury's proposal but not on the basis of reasons stated in paragraph 3 below.

2. Prior to the works of J. A. Cushman (1927, "An outline of a re-classification of the Foraminifera", *Contr. Cushman Lab.* 3) and J. J. Galloway (1933, *Manual of Foraminifera*, Indiana) on the systematics of the Foraminifera, there was little adherence to the Rules of Zoological Nomenclature in studies of the Foraminifera, as noted by Galloway who stated (1933, *op. cit.* : 4) "Almost no workers on Foraminifera up to 1927 and few outside of America even yet" (i.e. 1933) "have attempted to abide strictly by the Rules of Zoological Nomenclature". In the classification proposed by Cushman, there was no adherence to priority on the family level of classification and no such adherence was required by the Rules of Zoological Nomenclature in effect at that time. However, in the classification presented six years later by J. J. Galloway an attempt was made in the classification of Foraminifera

to adhere to the Rules of Zoological Nomenclature, not only on the generic and specific levels of classification but also on the family level, thereby anticipating the Commission on Zoological Nomenclature in its Copenhagen decision by twenty years. Subsequently either the Galloway or the Cushman classification for the most part has been followed, the majority of students following the Cushman classification. As pointed out by Mr. Dusenbury (para. 14) Galloway recognized the priority of the name ORBULINIDAE and those students who have followed the Galloway classification continued to use the family-group name ORBULINIDAE, as for example O. L. Bandy (1948, "Eocene and Oligocene Foraminifera from Little Stave Creek, Clarke County, Alabama", *Bull. Amer. Paleont.* 32 (No. 131) : 119), and W. R. White (1956, "Pliocene and Miocene Foraminifera from the Capistrano formation, Orange County, California", *J. Paleont.* 30 : 250). In recent years due to the lack of availability of the Galloway Manual, there has been more and more tendency for students of Foraminifera to utilise the term GLOBIGERINIDAE, following Cushman. The Glaessner classification (1945, *Principles of Micropaleontology*) mentioned by Dusenbury (para. 16) seems to be a compromise between the Galloway and the Cushman classifications. Glaessner used the family-group name GLOBIGERINIDAE, tending further to make GLOBIGERINIDAE the name used in recent literature.

3. Underlying the petition presented by Dusenbury to the Commission are some fundamental points which involve questions beyond the merits of suppressing the family ORBULINIDAE in favor of the family GLOBIGERINIDAE. The decision to apply the Law of Priority on the family level is meritorious in that of all the Rules of Zoological Nomenclature, the Law of Priority is probably the most important. If priority is recognized and adhered to there will be a trend toward stability of terms in zoological nomenclature, in spite of the fact that as the Copenhagen decision stands at the present time concerning family names, there are several undesirable aspects such as permitting a family name based on an invalid genus. In deciding to apply the Law of Priority to families, the Commission stipulated that where popular usage conflicts with priority a person may petition the Commission to suppress the older name in favor of the popular name as is sometimes done with lower taxonomic units. However, since the Law of Priority did not apply to family names before 1953, there are probably many family terms in popular usage which do not have priority. If exception is permitted in one or two cases, a precedent may be established whereby it will be more difficult to deny suppression of many similar cases. If then exception is given to the many cases where popular usage has precedence over priority, the whole system of priority in nomenclature on the family level will break down and the 1953 priority decision will have no meaning. Some stability is obtained by popular usage. Each generation of students tends to adapt and maintain their own terminology, only to have their familiar terms superseded by the next generation of students. For long term stability, however, it would seem that the application of the Law of Priority to family names would attain a more desirable result.

4. To suppress the family term ORBULINIDAE for GLOBIGERINIDAE may establish a precedent whereby the Commission will be called upon to consider equally deserving situations where popular usage is in conflict with precedence. A cursory examination of family terms within the order Foraminifera reveals at least five similar cases which are listed below :—

- (a) The family PENEROPLIDAE Schultze, 1854 (PENEROPLIDA of Schultze) is in popular usage, has precedence in popular terminology, but the

family SORITIDAE Ehrenberg, 1840 (Familia SORITINA of Ehrenberg) has priority.

- (b) The family ATAXOPHRAGMIIDAE Schwager, 1877, has priority over the more popular family term VERNEULINIDAE Cushman, 1927.
- (c) NODOSARIIDAE Schultze, 1854 (Family NODOSARIDA of Schultze) has priority over the popular family term LAGENIDAE Reuss, 1861 (LAGENIDEA of Reuss).
- (d) The family LAGYNIDAE Schultze, 1854 (LAGYNIDA of Schultze) has priority over the more popular family term ALLOGROMIIDAE Rhumbler, 1904.
- (e) The family ACERVULINIDAE Schultze, 1854 (ACERVULINIDA of Schultze) has priority over the more popular family term RUPERTIIDAE, the type genus of which was not named until 1877 (*Rupertia* Wallich, 1877).

The arguments which may be presented for the suppression of the name with priority in each of the above examples are as valid as those stated by Mr. Dusenbury for the suppression of the family term ORBULINIDAE. The examples do not include all the cases of popular family terms lacking priority within the order Foraminifera, suggesting the problems that may confront the Commission in trying to stabilise family terms on the basis of popular usage. If the order Foraminifera is typical, the number of cases deserving consideration by the Commission could be large.

5. In summary :

- (a) For most effective permanent stability in taxonomy on the family level, the Law of Priority should be rigorously applied and exceptions be allowed only in the most unusual cases ;
- (b) Applying a new rule such as the Law of Priority to family-taxa for the first time must entail changes in terms which have been in popular usage but students in the various branches of systematics should be willing to adapt to the changes necessary for the advantage of more permanent stability in nomenclature ;
- (c) The arguments put forth by Dusenbury for the suppression of ORBULINIDAE over GLOBIGERINIDAE are sound in themselves, but of more fundamental importance is the precedent that may be established if such a change is made, for there are undoubtedly numerous examples in the animal kingdom where the family term popularly used is not the family term of priority ;
- (d) In view of the foregoing I feel I cannot support Mr. Dusenbury's proposal to suppress the name ORBULINIDAE Schultze, 1854, in favour of the more popular family term GLOBIGERINIDAE Carpenter, Parker & Jones, 1862.

7. Support received from Miss Ruth Todd : The following letter of support for the present application (dated 29th May 1958) was received from Miss Ruth Todd (*U.S. Department of the Interior, Geological Survey, Washington, D.C., U.S.A.*) after the close of the Prescribed Waiting Period in the present case :—

With reference to Z.N.(S.) 1196, I wish to record my approval of Mr. Dusenbury's proposal that the family-group name GLOBIGERINIDAE

Carpenter, Parker & Jones, 1862, be given precedence over ORBULINIDAE Schultze, 1854 (Class Rhizopoda, Order Foraminifera) by authors who refer the two type genera to the same family-group taxon.

Adoption of Mr. Dusenbury's proposal will, in maintaining the current and well established usage, aid in promoting stability and universality in the nomenclature of the Foraminifera.

III. THE DECISION TAKEN BY THE INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

8. Issue of Voting Paper V.P.(57)68 : On 30th December 1957, a Voting Paper (V.P.(57)68) was issued in which the Members of the Commission were invited to vote either for, or against, "the proposal relating to the family-group names GLOBIGERINIDAE Carpenter, Parker & Jones, 1862, and ORBULINIDAE Schultze, 1854 (Class Rhizopoda, Order Foraminifera), as set out in Points (1) to (6) in paragraph 18 on pages 198-199 of Volume 13 of the *Bulletin of Zoological Nomenclature*" [i.e. in the Points numbered as above in paragraph 18 of the paper reproduced in the first paragraph of the present *Opinion*].

9. The Prescribed Voting Period : As the foregoing Voting Paper was issued under the Three-Month Rule, the Prescribed Voting Period closed on 30th March 1958.

10. Particulars of the Voting on Voting Paper V.P.(57)68 : At the close of the Prescribed Voting Period, the state of the voting on Voting Paper V.P.(57)68 was as follows :—

(a) *Affirmative Votes had been given by the following twenty-two (22) Commissioners (arranged in the order in which Votes were received) :*

Holthuis ; Mayr ; Boschma ; Hering ; Mertens ; Prantl ; Vokes ; Lemche ; do Amaral ; Bonnet ; Jaczewski ; Dymond ; Hankó ; Key ; Bodenheimer ; Bradley (J.C.) ; Hemming ; Sylvester-Bradley ; Stoll ; Tortonese ; Kühnelt ; Riley ;

(b) *Negative Votes*

None ;

(c) *On Leave of Absence, one (1) :*

Miller ;

(d) *Voting Papers not returned, one (1) :*

Cabrera.

11. Declaration of Result of Vote : On 31st March 1958, Mr. Hemming, Secretary to the International Commission, acting as Returning Officer for the Vote taken on Voting Paper V.P.(57)68, signed a Certificate that the Votes cast were as set out in paragraph 10 above and declaring that the proposal submitted in the foregoing Voting Paper had been duly adopted and that the decision so taken was the decision of the International Commission in the matter aforesaid.

12. Preparation of the Ruling given in the present "Opinion" : On 20th May 1958, Mr. Hemming prepared the Ruling given in the present *Opinion* and at

the same time signed a Certificate that the terms of that Ruling were in complete accord with those of the proposal approved by the International Commission in its Vote on Voting Paper V.P.(57)68.

13. Original References for Generic and Specific Names : The following are the original references for the generic and specific names placed on *Official Lists* and *Official Indexes* by the Ruling given in the present *Opinion* :—

bulloides, *Globigerina*, d'Orbigny, 1826, *Ann. Sci. nat.*, Paris [1] 7(27) : 277

Globigenera Sowerby (G.B.), 1842, *Conch. Man.* (ed. 2) : 154

Globigerina d'Orbigny, 1826, *Ann. Sci. nat.*, Paris [1] 7(27) : 271, 277

Orbulina d'Orbigny, 1839, in Sagra (R. de la), *Hist. phys. pol. nat. Ile de Cuba* : 2

universa, *Orbulina*, d'Orbigny, 1839, in Sagra (R. de la), *Hist. phys. pol. nat. Ile de Cuba* : 3

14. Reference for the selection of a type species for a nominal genus : The following is the reference for the selection of a type species for a nominal genus specified in the Ruling given in the present *Opinion* :—

For *Globigerina* d'Orbigny, 1826

Parker, Jones & Brady, 1865, *Ann. Mag. nat. Hist.* (3) 16 : 36

15. Original References for Family-Group Names : The following are the original references for the family-group names placed by the Ruling given in the present *Opinion* on the *Official List* or, as the case may be, on the *Official Index* for the names of taxa belonging to the family-group category :—

GLOBIGERINIDA Carpenter, Parker & Jones, 1862 (an Invalid Original Spelling for GLOBIGERINIDAE)

GLOBIGERINIDAE (correction of GLOBIGERINIDA) Carpenter, Parker & Jones, 1862, *Introd. Study Foram.* : 171-175

ORBULINIDA Schultze, 1854 (an Invalid Original Spelling for ORBULINIDAE)

ORBULINIDAE (correction of ORBULINIDA) Schultze, 1854, *Ueber Organ. d. Polythalamien* . . . : 52

TURBINOIDAE d'Orbigny, 1840, in Sagra (R. de la), *Hist. fis. pol. nat. Isla de Cuba* : 38, 34-35

16. Compliance with Prescribed Procedures : The prescribed procedures were duly complied with by the International Commission on Zoological Nomenclature in dealing with the present case, and the present *Opinion* is accordingly hereby rendered in the name of the said International Commission by the undersigned Francis Hemming, Secretary to the International Commission on Zoological Nomenclature, in virtue of all and every the powers conferred upon him in that behalf.

17. "Opinion" Number : The present *Opinion* shall be known as *Opinion Five Hundred and Fifty-Two* (552) of the International Commission on Zoological Nomenclature.

DONE in London, this Twentieth day of May, Nineteen Hundred and Fifty-Eight.

*Secretary to the International Commission
on Zoological Nomenclature*

FRANCIS HEMMING

